PRESSURE SENSITIVE SCROLLBAR FEATURE

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Abstract

A proximity sensor system includes a sensor matrix array having a characteristic capacitance on horizontal and vertical conductors connected to sensor pads. The capacitance changes as a function of the proximity of an object to the sensor matrix. The change in capacitance of each node in both the X and Y directions of the matrix due to the approach of an object is converted to a set of voltages in the X and Y directions. These voltages are processed by circuitry to develop electrical signals representative of the centroid of the profile of the object, i.e., its position in the X and Y dimensions. Noise reduction and background level setting techniques inherently available in the architecture are employed. Pressure information is used to modify the scrolling speed.

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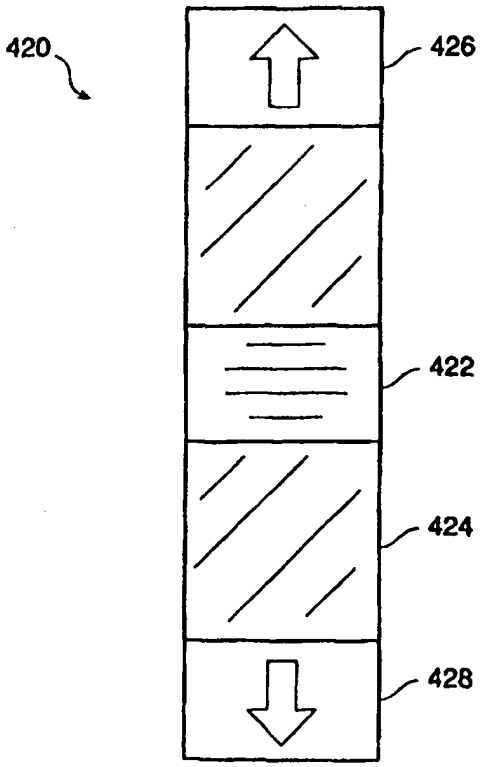
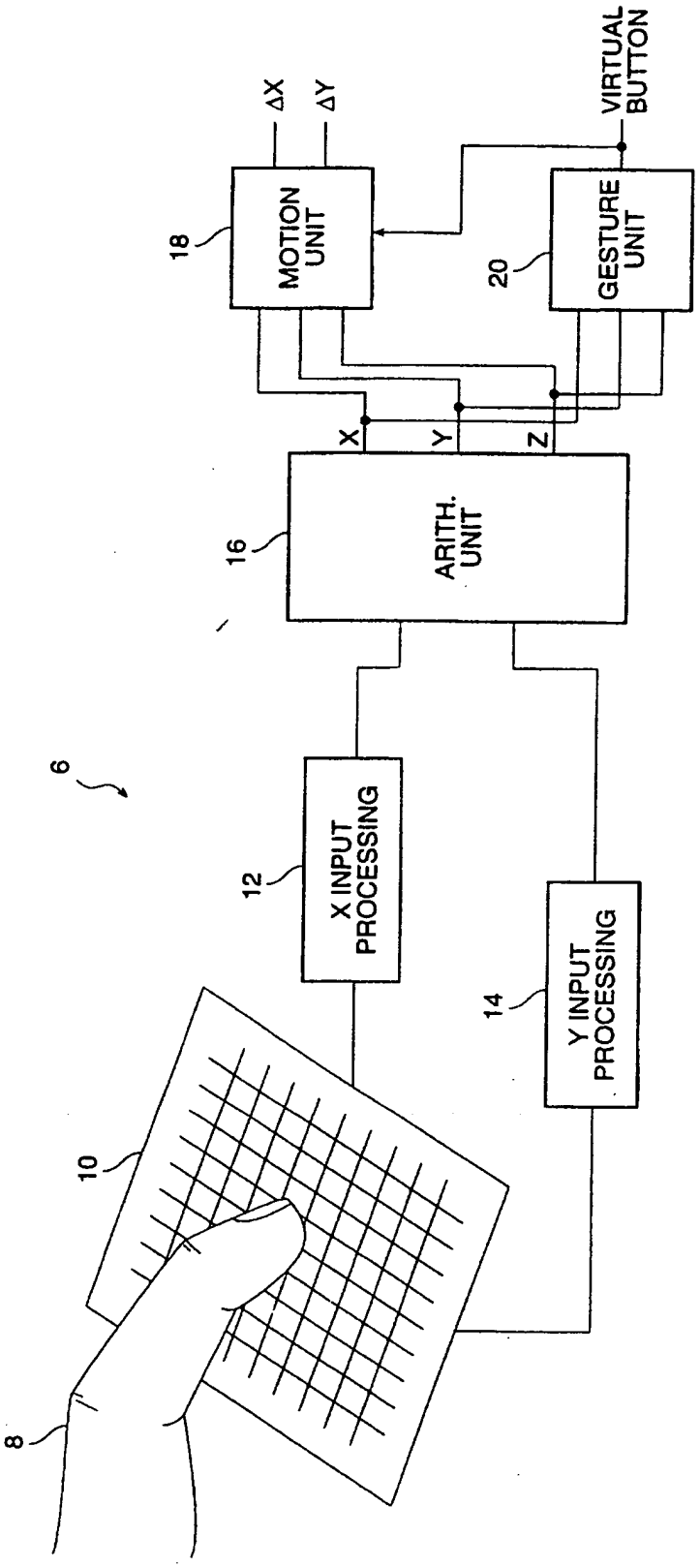
(57) Abstract

A proximity sensor system includes a sensor matrix array having a characteristic capacitance on horizontal and vertical conductors connected to sensor pads. The capacitance changes as a function of the proximity of an object to the sensor matrix. The change in capacitance of each node in both the X and Y directions of the matrix due to the approach of an object is converted to a set of voltages in the X and Y directions. These voltages are processed by circuitry to develop electrical signals representative of the centroid of the profile of the object, i.e., its position in the X and Y dimensions. Noise reduction and background level setting techniques inherently available in the architecture are employed. Pressure information is used to modify the scrolling speed.




ΔX
ΔY
VIRTUAL BUTTON
MOTION UNIT
18
GESTURE UNIT
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ARITH. UNIT
16
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X INPUT PROCESSING
12
Y INPUT PROCESSING
14
10
8

FIG. 1

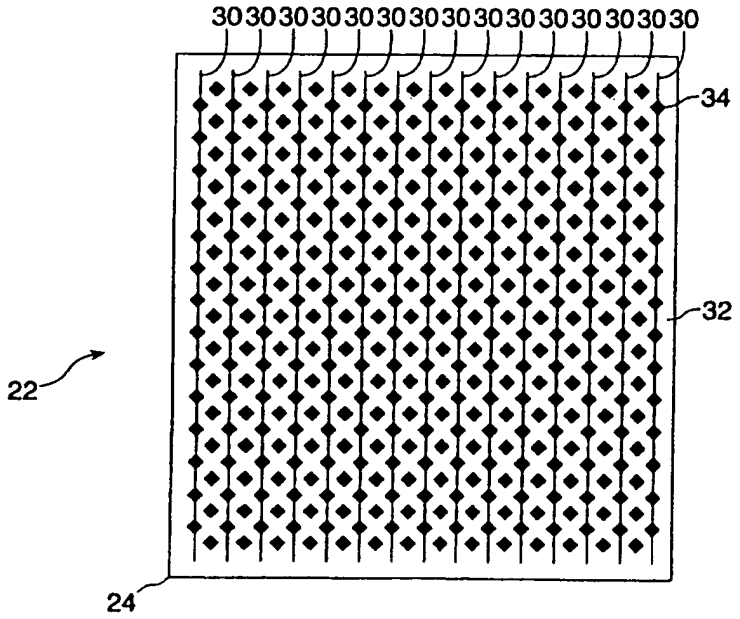
30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
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FIG. 2A

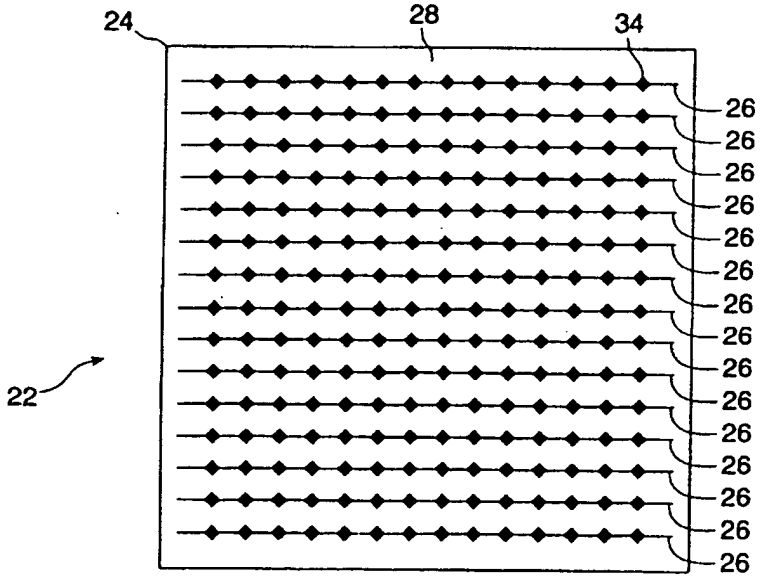
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FIG. 2B